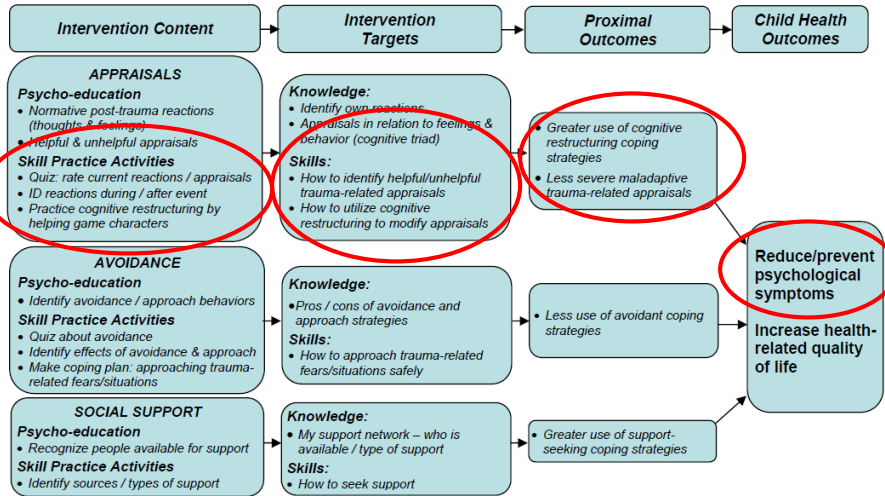




Process for creating & sharing effective e-Health applications

- 1 Clearly define specific goals & program theory**
 - Use evidence base
 - Carefully define proximal targets
- 2 User-centered design process**
 - Involve users at every stage of development
 - Test usability & engagement
- 3 Test effectiveness**
 - Does it achieve specific proximal goals & health outcomes?
- 4 Share and disseminate**
 - Test multiple methods for dissemination
 - Continually track use - to improve dissemination

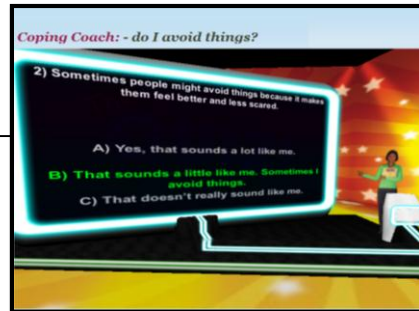
1. Specific goals & program theory: Coping Coach



2. User-centered design process

Built prototype 1

- (relatively) low cost
- 2-3 high priority modules
- test usability / engagement



Conclusions from Prototype 1 Testing

- Children and parents
 - interested in a web-based resource
 - found information trustworthy

- **SUGGESTED IMPROVEMENTS**

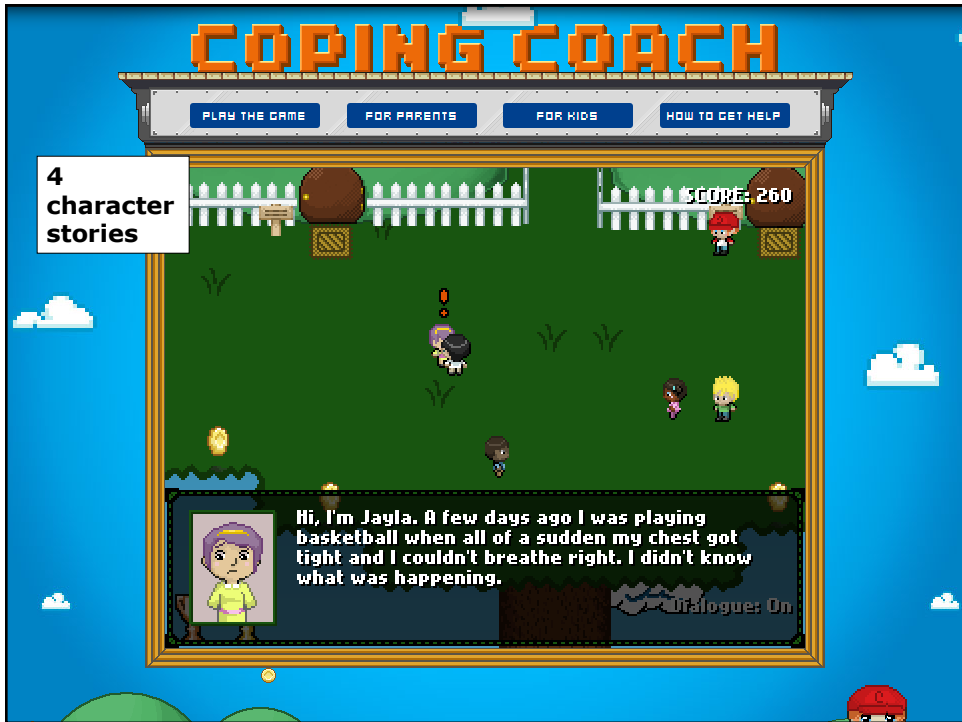
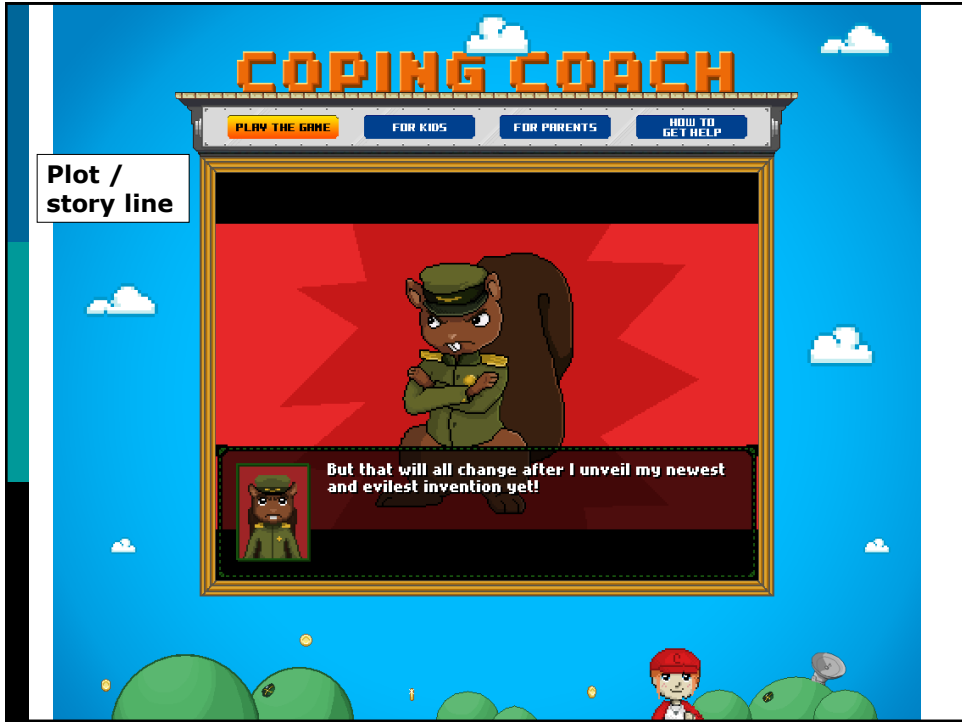
- ✓ Increase interactivity and functionality
- ✓ Add audio
- ✓ Reduce amount of text
- ✓ Track progress/ accomplishments throughout the activities
- ✓ Develop overall concept / platform for the activities



Changes for Prototype 2

- Game-based, including storyline
 - Tracks progress, includes storyline and adventure log
 - Uses points and trophies for reinforcement
 - 3 levels:
 - **Tree world** (Feelings / trauma reactions)
 - **Airship** (Appraisals / re-appraisal skills)
 - **Cloud world** (Avoidance / Approach)
 - Social support woven throughout
- Added music & audio
- Learned from research on “serious games” / “games for health”











Pros/ cons of approach vs avoidance coping

1. Specific goals & program theory: Expert review

- Expert review - congruence of program theory and intervention materials.
- Psychologists and psychiatrists from US, Australia, Netherlands, UK, Switzerland – with expertise in child trauma and/or web-based interventions
- Relevance, Effectiveness, and Age-appropriateness of each of 15 intervention activities, rated on a 0 to 4 scale.

TARGET	Relevance to target	Likely effectiveness	Age-appropriateness
ID emotional reactions to trauma	3.3 – 3.8	2.7 – 3.3	3.1 – 3.8
Re-appraisal skills	3.7 – 3.9	3.0 – 3.5	3.4 – 3.7
Reduce avoidance coping	3.4 – 3.9	3.4 – 3.8	3.6 – 3.9
Increase social support seeking	3.5 – 3.9	2.8 – 3.3	3.6 – 3.7

- Illustrative reviewer comment: *“Interactive nature of the exercise and the fact that it doesn’t sugar coat that there are some positives to avoidance is useful as it makes it realistic for kids.”*

2. User-centered design (test engagement)

Comments from kids:

- "I liked how I got to express my feelings."
- "It's fun because it was asking me how I felt about stuff, then I go to put a face in a box to explain how I felt... instead of writing or something."
- "I like that it gave you questions and you had choices to figure out how you feel"

- "Learned that after you get sick or have an accident you can still make things feel better"
- "There's more good things when you approach something then when you don't, when you avoid."
- "I learned that sometimes avoiding situations is good for me and sometimes it's not."

3. Test effectiveness in a pilot RCT

- Enroll at hospital within 2 weeks of acute medical event
- Age 8 to 12; screen for subjective distress / life threat
- Randomize to Coping Coach vs Wait list control
 - Start first module in hospital – keep playing at home over next month
 - Reminders via phone / text / email
 - Incentive to finish whole game
 - Encourage repeat play
 - Wait list control – Coping Coach after 12 week follow-up assessment
- Track all interactions with the game
- Baseline, 6 wk, 12 wk, 18 wk assessments
 - Proximal targets
 - Trauma-related appraisals
 - Coping strategies: Avoidance coping, Positive cognitive restructuring, Seeking social support
 - Outcomes: PTSD symptoms, Health-related quality of life

Summary

Child feedback at each step invaluable

- Look & feel, functionality

Early prototype

- Theory → interactive activities
- Test usability & engagement
- Willing to throw it out & start over



Re-design as game

- Built on lessons learned from Prototype 1
- Worked with game designers
- Improved usability & engagement



Next steps

- Expert review – how does content match program theory?
- Pilot RCT – impact on proximal targets & outcomes

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□ Music

- Paul Weinstein